

WHAT IS CLAIMED IS:

1. A high-pressure discharge lamp, comprising:

a light emission tube having a light emission portion, a pair of electrodes disposed so as to be opposed to each other in the light emission portion, and a pair of side tube portions elongating from ends of the light emission portion along an axis line connecting the electrodes,

a support structure for supporting the light emission tube so as to restrict a displacement of the light emission tube at least in a direction perpendicular to the axis line, and

a pair of thermal-stress generation members, base end sides of which are supported by the support structure, and the tip end sides of which are connected to the side tube portions of the light emission tube, the thermal-stress generation members generating thermal stresses by a temperature change at a time of switching the high pressure lamp from an on status to an off status, and the thermal stresses acting as forces directed downward in a vertical direction and outward with respect to the light emission tube on the side tube portions of the light emission tube arranged in a posture where the axis line extends in a substantially horizontal direction.

2. A high-pressure discharge lamp according to claim 1, further comprising a pair of connection members for respectively connecting the side tube portions to the tip end sides of the thermal-stress generation members.

3. A high-pressure discharge lamp according to claim 2, wherein the connection member comprises an annular portion surrounding an outer circumferential face of the side tube portion, and a fixed portion extending from the annular portion in a direction leaving away from the side tube

portion, the tip side end of the thermal stress generation member being fixed to the fixed portion.

4. A high-pressure discharge lamp according to claim 3, wherein the connection member is fixed to the side tube portion by crimping the annular portion onto the side tube portion.

5. A high-pressure discharge lamp according to claim 4, wherein a groove into which the annular portion is fitted is formed on the outer circumferential face of the side tube portion.

6. A high-pressure discharge lamp according to claim 1, wherein the electrodes extend in the direction of the axis line and protrude to an outside of the light emission tube through the tube portions,

wherein the support structure comprises wire frames for supporting the electrodes and electrically connecting the electrodes to a lighting circuit, and

wherein the base ends of the pair of thermal-stress generation members are fixed to a pair of support shafts respectively extending from the wire frames to the side tube portions.

7. A high-pressure discharge lamp according to claim 1, wherein the thermal-stress generation members are made of bimetal.

8. A high-pressure discharge lamp according to claim 1, wherein the light emission tube is made of a ceramic material.

9. A high-pressure discharge lamp according to claim 1, wherein a light emission substance is sealed in the light emission tube, and

wherein the pressure of the light emission substance during lighting is equal to or higher than 10 MPa.

10. A high-pressure discharge lamp according to claim 1, further

comprising an outer tube enveloping the light emission tube.

11. A high-pressure discharge lamp comprising:

a light emission tube having a light emission portion, and

a thermal-stress generation member for generating thermal stress by a temperature change at a time of switching the high-pressure discharge lamp from an on status to an off status so that the thermal stress generates a compression stress in an upper portion of the light emission portion.